

Transient security assessment for power system stability: a review on artificial intelligence approach

ABSTRACT

The growth of large interconnected electricity networks requires a high degree of security for normal operation. This paper attempts to overview several available techniques for assessing the Transient Security Assessment (TSA) of a power system. Different algorithms are explained in details (Static and Dynamic Security Assessment) with the uses of Artificial Intelligent (AI) method. Transient effects can be roughly described as undesired voltage/current that may result a contingencies in the power system. However, it is only considered lightning and switching as the main causes of TSA. In this proposed method, Artificial Neural Network (ANN) and Fuzzy techniques are able to use in term of classification, prediction and to determine the system security status. Time domain analysis is performed for each credible contingency using signal processing method; than an AI model is proposed for the TSA analysis. The novelty of the proposed approach is that the fast ability to detect and classify any disturbance (lightning (or) switching) in the electric power system using AI techniques.

Keyword: Artificial neural network; Dynamic security assessment; Fuzzy logic; Signal processing; Static security assessment; Transient security assessment